19U309 (Pages: 2) Name: .....

Reg.No: .....

THIRD SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2020

(CBCSS - UG)

CC19U BCA3 C05 - COMPUTER ORIENTED NUMERICAL & STATISTICAL METHODS

(Complementary Course)

(2019 Admission - Regular)

Time : 2.00 Hours

Maximum : 60 Marks

Credit : 3

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 2 marks.

1. State intermediate value theorem.
2. Prove $\Delta = E - 1$
3. Give the formula for Lagrangian interpolation.
4. Define trapezoidal rule for integration.
5. Distinguish between variables and attributes.
6. Calculate HM for the following data

x	3	5	7	8	9
f	1	3	4	2	3

7. Define Median
8. Define partition values
9. Write down the normal equation to fit a straight line.
10. Distinguish between linear and non-linear correlation.
11. Define the term regression by giving suitable examples.
12. Define distribution function of a random variable.

(Ceiling: 20 Marks)

Part B (Short essay questions)

Answer ***all*** questions. Each question carries 5 marks.

13. Find the real solutions of the following equation by the bisection method.

    $x^3 - x - 4 = 0$

14. Find the value of $\sqrt{2}$. Correct to 4 decimal places using Newton Raphson method.

15. For the following values, estimate $f(7.5)$, using Newton's backward difference interpolation formula.

x	1	2	3	4	5	6	7	8
y	1	8	27	64	125	216	343	512

16. Find an approximate value of $\log_e 5$ by calculating $\int_0^5 \frac{dx}{4x+5}$, by Simpson's 1/3 rule of integration with n=10.

17. Distinguish between mean deviation and standard deviation. Why standard deviation is considered to be the most popular measure of dispersion?

18. Define:

    a) Mutually exclusive events

    b) Equally likely events

    c) Independent events

    d) Exhaustive events give example of each.

19. Find the constant C such that the function is a pdf and compute $P(1 < x < 2)$

    $f(x) = \begin{cases} cx^2 & 0<x<3 \\ 0 & Otherwise \end{cases}$

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any ***one*** questions. Each question carries 10 marks.

20. The sales of two salesman A and B of a company over a sample of days were as follows (in 000's of Rupees)

A	5.5	2.5	6.0	3.5	4.5	5.0	5.0	4.0
B	4.5	2.0	3.5	2.5	4.0	5.0	2.5	4.0

    Find out who is more consistent in his sales.

21. Judge X and Y given the marks of 10 candidates in beauty contest. Find the rank correlation coefficient.

Candidate	A	B	C	D	E	F	G	H	I	J
Judge X	50	60	70	65	80	85	90	92	40	96
Judge Y	60	70	75	60	80	82	86	90	50	95

(1 × 10 = 10 Marks)

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